



Broadband Policy Assessment

SUMMARY

Broadband infrastructure investment is only made when there is enough return on investment to make the infrastructure sustainable when deployed by the public sector and enough to deliver a reasonable profit when deployed by the private sector. Every identified need for additional infrastructure has to be considered in this business case. The cost of the infrastructure includes not just the materials but the labor and fees associated with the construction and deployment. Local governments can affect these costs in regards to associated fees and time (time is money) required to get the approvals and permits. The majority of local ordinances, permitting fees and processes were defined well before broadband was even a consideration. This assessment tool and associated examples (if available) are intended to make the review and adjustments of existing policies easier for all local governments. The assessment matrix (spreadsheet) functions as a guide for localities to quickly assess existing ordinances and fees to identify opportunities to lower costs of broadband deployments. Examples and model resolutions have been gathered from around the country to assist in the development of new (or modified) ordinances. All localities should review their ordinances, fees and processes whether they consider their area well served by broadband providers or not as we cannot predict how much bandwidth – and ultimately infrastructure -- we will need in the future and lowering costs will certainly facilitate future investments in infrastructure. Once a locality identifies modifications they need to make to facilitate broadband infrastructure deployments, they should share these changes with their local broadband providers to get their feedback to ensure they are not missing a key inhibitor.

Finally, we understand that many localities adopt the state building code and some of these items do not yet exist in the state building code. Please know that we are working to address these items at the state level.



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POLICY AREAS TO CONSIDER

Telecommunication Wiring in Buildings

It is recommended that homes and buildings include CAT5/6 wired directly to the central circuit using “home run wiring” or “star topology”, not branched or daisy chained. All use of CAT3 and non-twisted pair wiring should be discontinued.

Each point where the wiring is chained opens up the possibility of interference, power influence, and improper wiring termination. For Fiber to the Home (FTTH) and even Digital Subscriber Line (DSL) in conjunction with IPTV, it is extremely important to have home run wiring. POTS (plain old telephone) service only requires two wires (1 Pair). 100Mbps Ethernet requires 4 wires (2 pairs); 1,000Mbps requires 8 wires (4 pairs).

Renovations of older structures should include provisioning non-metallic conduit, to allow telecommunications services to enter the building, feeding into centralized “communications rooms”. The non-metallic conduit should be equipped with radius elbows that won’t kink the telecommunication cables. The conduit should be adequately spaced away from electrical wiring. Conduit and electrical wiring should never cross paths, if possible. Renovation blueprints and other documentation should always include telecommunication conduit routes.

Grounding Codes

Ensure that grounding codes are up-to-date and adhere to residential and commercial codes. Common grounding in buildings is critical to equipment protection and aids in limiting power surges, lightning damage and power influence. Improper building grounding can impact the delivery of broadband services to an entire neighborhood, not just the improperly grounded building.

Appalachian Power Company has recently updated their policies and will no longer allow other utilities to attach a grounding clamp to their meter base. There is a grounding/bonding bus bar that is being placed on some houses which is attached to a ground wire that goes back to the panel box and has a series of set screws for other utilities to attach under. This type of device will make it easier for all electronics to be well grounded.



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Permitting Policies

Permitting requirements vary by locality. Requiring weekly or daily permits instead of an overall project permit creates delays which equate to additional expense and budgeting issues, and administrative overhead for both the service provider and local government staff. Some localities depend on these types of permits for tracking where work is being done daily or weekly. Service providers prefer to provide maps and weekly updates (not permits) to indicate where infrastructure work is being done and be allowed to submit changes during the week if they need to move to another section of the approved project.

Utility Zoning for Telecom Facilities

Very few Virginia localities have implemented utility zoning. Normally, the lots that telecommunications huts or co-location buildings are built on do not need to be as large as a residential or commercial lot. The facilities need enough land to have a grounding field, for earth grounding electronic equipment, and room for backup power such as a generator which may require fuel storage tank when natural gas is not available at the site. Excessive zoning requirements like setbacks and green spaces can inhibit a provider's ability to purchase or use a particular site; it should be possible for these sites to have smaller footprints and fewer requirements

Example

Sandy, Oregon; In June, 2011, Sandy OR amended Ordinance No. 17.84.60 to include that all development sites shall be provided with broadband fiber. This ordinance requires all developers to incorporate broadband infrastructure in their planning and construction. The approval of new development sites is predicated upon the developer incorporating the installation of broadband fiber, regardless of whether a public right-of-way. This ordinance ensures that the infrastructure is already there, making it less burdensome for telecommunications providers to expand broadband coverage.

Sandy Municipal Code Amended Ordinance No. 17.84.60:

<http://webcache.googleusercontent.com/search?q=cache:http://archive.ci.sandy.or.us/WebLink8/0/doc/76769/Page2.aspx>



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Dig Once Policy

Considered by many to be the easiest and most effective policy change to help expedite and reduce the cost of future broadband deployment. “Dig once” policies are designed to reduce the number and scale of repeated excavations for the installation and maintenance of broadband facilities in rights of way.

The largest expense of building out broadband infrastructure is the construction phase.

“Greenfield utility deployments” (development of utilities like telecommunications, water, electric, etc., before buildings, roads and sidewalks are paved) are always less expensive than deploying to an area that is already developed.

Here are a few ways localities can facilitate broadband deployment through “dig once” policies:

- Require developers to have large utility easements that allow for placement of all utilities, including telecommunications infrastructure or conduit, underground before roads or paved and sidewalks are poured. This can be taken a step further by defining standards for where each type of utility is placed in the utility easement in order to minimize utilities crossing each other and the need for “pot holing” to locate other utilities.
- Localities can partner with developers to plan the installation of open-access conduit systems (including service access pedestals and/or hand holds) throughout any new development at the time other underground utilities are installed, ensuring the conduit system is brought to the main development entrance where telecommunication providers can access the conduit for service delivery.
- When a locality plans to renovate, repair or build new streets, sidewalks, parking lots etc., open access conduit could be installed when the ground is open. During the planning stage, all service providers should be notified of the opportunity to utilize the conduit or to coordinate with the locality for new infrastructure installation. If open access conduit is installed, it



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could be leased to service providers thus paying for itself over a period of time. It can also be used to manage tight right-of-way areas.

- The open access conduit system should be strategically placed near hand holds and/or pedestals for service providers to use and to house splice cases.

Example

Poulsbo, Washington; Chapter 12.02.015 (Conduit Standards) of Poulsbo's Municipal Code states that when new public streets are constructed, whether by the city as a public works project or by a private party in conjunction with development, the party constructing the street must also install sufficient conduit for accommodating telecommunications lines (see ordinance for specific diameter requirements).

All costs of the installation are the responsibility of the party constructing the street. If the party constructing the street is a private entity – for example, as part of a residential or commercial development – the conduit shall be conveyed and dedicated to the city.

Additionally, all telecommunications service providers must utilize this conduit unless doing so is not technologically feasible or reasonably practicable.

This operates as a Dig Once policy in a way: since the conduit installation must be incorporated in the street construction, it is already there to use, making additional excavations unnecessary and saving telecommunications providers from having to install it themselves. The requirement that all telecommunications service providers must utilize this existing conduit if possible makes it more likely than not that this conduit will be utilized.

Chapter 12.02 of the Municipal Code:

<http://www.codepublishing.com/wa/poulsbo/html/Poulsbo12/Poulsbo1202.html>

Poulsbo's full Municipal Code:

https://www.cityofpoulsbo.com/council/council_ordinances.htm



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Every locality owns assets that can reduce the need to construct some elements of new networks and thereby reduce total up-front capital costs. New network deployments can benefit enormously from access to existing fiber, conduit, and towers. Localities should map all local owned and available fiber and any conduit that has space available. Also, localities should map all existing vertical assets. It is recommended that localities use the Vertical Assets Inventory to assure all towers are mapped. It is necessary that this information is documented in order to share and to identify the locality's deficiencies.

<http://www.vait.gis.bev.vt.edu/>

Wireless Telecommunications Ordinance

Since more than one antenna can be collocated on a tower structure, localities should encourage collocation if possible, thereby reducing the amount of new towers. However, sometimes the construction of a new tower is necessary. Although the Telecommunications Act of 1996 prevents local governments from prohibiting the provision of wireless telecommunications services, they have been reserved the right to regulate the number and placement of telecommunications facilities through local zoning. These zoning provisions need to be streamlined and local governments need to expedite the approval process for rapid deployment of broadband infrastructure.

A model ordinance is available from PCIA, the Wireless Infrastructure Association.

http://www.pcia.com/images/Advocacy_Docs/PCIA_Model_Zoning_Ordinance_June_2012.pdf

Sharing Construction Plans with Private Providers

Localities should share all approved development plans with broadband providers. By sharing these construction plans, private investment costs can be minimized and the public rights-of-way are disturbed less often. As a result, while this is not a formal Dig Once policy and/or ordinance, it carries the same practical implications.

Example

Chippewa Valley, Wisconsin; The Chippewa Valley Internetworking Consortium (CINC) is a regional Community Area Network (CAN) formed in 1999 that is committed to broadband



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serving public interests. CINC provides ongoing maintenance for a shared infrastructure that encompasses the needs of all interested parties, from telecommunications providers to private citizens. This enables organizations to provide greater and more dependable service at less cost to stakeholders and customers.

CINC projects begin in a conceptual phase with a timeline and objectives, and there are frequent conversations with private sector partners regarding those plans.

<http://cincua.org>

Broadband Part of the Comprehensive Plan

Planners should include broadband initiatives in comprehensive plans. According to a report from the American Planning Association, planners should engage in planning for broadband infrastructure in seven different ways:

- Including broadband infrastructure as a basic planning component.
- Conducting broadband mapping.
- Increasing bandwidth demands.
- Mapping broadband locations and wireless coverage.
- Using social networking as an information resource.
- Forging public/private partnerships. Both public and private partners need to work together in striving for universal broadband connectivity.
- Maximizing the generated benefits from private development resulting from public funding for infrastructure.

Example

Humboldt County, California; Humboldt County adopted a Comprehensive General Plan with a section dedicated to telecommunications. This plan seeks to expand broadband access across the county, stating that broadband is a “fundamental aspect of the infrastructure required to educate our youth, create jobs, promote public safety, improve our standard of living, and deliver essential services like health care.”



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The goals and policies of the plan include integrating broadband service capability into new construction projects; utilizing the public right-of-way in a manner that encourages Dig Once policies; requiring new development projects to include the installation of necessary infrastructure - including conduit; and promoting net neutrality. The ultimate goal of the plan is to make high-speed broadband available to every resident, business, and institution in Humboldt County.

<http://humboldt.gov/DocumentCenter/View/1889>

Strategic Broadband Plan

Localities need to have a strategic broadband plan that identifies areas for future deployments and partnerships with the providers to leverage funding strategies and provide solid business cases for broadband services expansions.

Example

Portland, Oregon; The city of Portland adopted a broadband strategic plan establishing a comprehensive municipal policy on enhancing broadband infrastructure. The five goals of the plan are:

1. Strategically invest in broadband infrastructure to attract innovative broadband-intensive business and institutions that create knowledge jobs in Portland.
2. Eliminate broadband capacity, equity, access and affordability gaps so Portland achieves near universal adoption of broadband services for all residents, small businesses, and community-based organizations.
3. Develop highly technology-skilled and employable residents, students, small businesses and workforce.
4. Promote and plan for the use and wide-spread adoption of broadband technologies in government, energy conservation, transportation, health, education and public safety.
5. Create future-oriented broadband policy, modernize government organizations and institutionalize digital inclusion values through the region.

Full Plan: <http://www.portlandoregon.gov/revenue/article/394185>



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Plan Highlights: <http://www.portlandoregon.gov/revenue/article/396097>

Model County Resolutions

Localities need to make a commitment to supporting and facilitating broadband expansions throughout their organization. Every local government department should consider broadband and passing a resolution to make a formal commitment is a way to communicate to staff and the community that broadband is a priority.

Bayfield County Broadband Resolution

http://broadband.uwex.edu/wp-content/uploads/2014/05/Bayfield_county_broadband_resolution.pdf

Marinette County Broadband Resolution

http://broadband.uwex.edu/wp-content/uploads/2014/05/Marinette_County_broadbandnovember2013.pdf

Oneida County Improved Broadband Access Resolution

<http://broadband.uwex.edu/wp-content/uploads/2014/05/Oneida-Resolution.pdf>